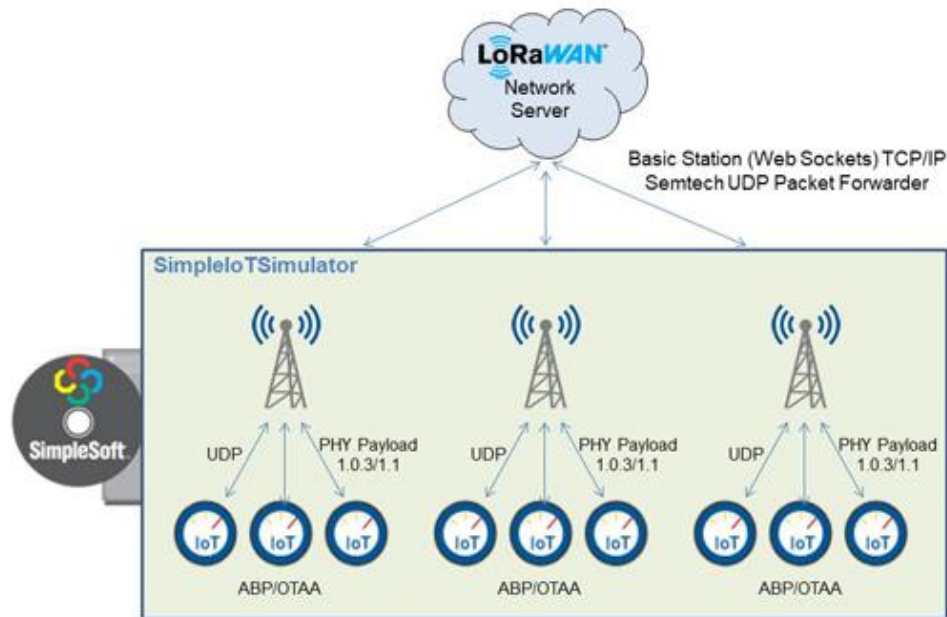# *SimpleIoTSimulator* for LoRaWAN

**Simplifying
Network & IoT
Management**

Overview

LoRaWAN (Long Range Wide Area Network) allows low-powered IoT devices to bi-directionally and securely communicate with cloud-based applications. IoT devices use radio frequency bands to talk with LoRaWAN gateways which connect with LoRaWAN network providers over the internet. The LoRaWAN Network providers need to ensure that their Network Servers can scale to support a large number of gateways and sensors, while cloud-based applications need to be developed, demonstrated and tested prior to actual deployment. This is where the **SimpleIoTSimulator** is most useful.

Simulate LoRaWAN Networks

SimpleIoTSimulator is an easy to use, software based, IoT Device Simulator that quickly creates test environments made up of thousands of sensors and gateways, all on just one computer. Using SimpleIoTSimulator, you can simulate an entire LoRaWAN Network. Simulated gateways support Basic Station (WebSockets) and Semtech UDP forwarding protocols to communicate with Network Servers, while the simulated devices support 1.0.3 and 1.1 LoRaWAN PHY payload specifications and both OTAA and ABP activation methods.

Internally, the SimpleIoTSimulator creates separate device contexts for the sensors and gateways, so that each one of them can be individually controlled to create various test and demo scenarios. Both uplink data messages and downlink control messages are supported in the simulation. A built-in wizard interface that queries for number of gateways, type and number of sensors, and type of key initialization can be used to quickly setup the simulator.

The modular architecture of the simulator allows Class A, B and C type LoRa devices to be modeled using scripts. These scripts can be used to also model the data returned by the sensors and some sample scripts are provided to use as templates.

Useful for Development, Sales Demos, Server Sizing, Security, Testing, …

Application development can start before real sensors are in place. The simulation can be used to create dynamic sales demos that demonstrate the value of the application software and convince the potential user of his return-on-investment, prior to actual deployment. Proof-of-Concept projects using the simulator can quickly transform themselves into actual successful deployments.

Network server software can be deployed on correctly sized hardware that is capable of handling the number of gateways and sensors to be supported. Simulated sensors can also act as decoys to detect intrusion. The simulator can also be leveraged for functional and scalability testing, without needing large investment in hardware test infrastructure. Test scenarios with large number of devices, receipt of uplink messages at a rapid rate, clock drifts, loss of communication with devices, gateway failures can all be easily scripted to create robust solutions.

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